

ABSTRACT OF THE DISCLOSURE

A vertical MOSFET includes a base region formed on a drain region and a source region formed in the base region. A trench is formed to extend from the surface of the source region and penetrate the source region and has depth to reach a portion near the drain region. A gate insulating film is formed on the side walls and bottom portion of the trench and the gate electrode is formed in the trench. The impurity concentration profile of the base region has a first peak in a portion near the interface between the source region and the base region and a second peak which is formed in a portion near the interface between the base region and the drain region and is lower than the first peak. The threshold voltage is determined based on the first peak and the dose amount is determined based on the second peak.